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ABSTRACT

This study examined the efficacy of early intervention with 38 children ages 5 to 10 with Down Syndrome. The study specifically looked at the influence on later school placement of three early intervention treatments during a child's first 5 years: (1) publicly provided programs (22 children); (2) privately provided programs (4 children); and (3) a combination of the two (12 children). The study interviewed parents and teachers and reviewed cumulative school records. Of the children who had received public early intervention programs, 26 percent were currently in home district inclusion programs, 39 percent in integrated regular-special education placements, and 35 percent in full time special education placements. Of the children who had received private early intervention services, 50 percent were in home district inclusion programs, 25 percent in integrated regular/special education placements, and 25 percent in full time special education. Among children who had received both public and private programming, 50 percent were in inclusion programs, 33 percent in integrated regular/special education, and 17 percent in full-time special education. The study also found that children who had received either public or private early intervention in inclusive settings were more likely to be in inclusive placements later. Overall, more students who had received both public and private early intervention services were later in integrated elementary school settings. (Contains 27 references.) (DB)

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THE IMPORTANCE OF MULTIPLE TREATMENTS IN COMBINATION FOR THE MILD TO MODERATELY INVOLVED

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In the United States, interventions expended towards the improvement of the lives and school performance of young children enjoy a long history. However, an actual discipline of early childhood intervention was not official until the birth of the antipoverty program, Project Head Start, some thirty years ago, in the mid 1960's. Project Head Start was a commitment of the Democratic Party and President J. F. Kennedy to aid the poor. Unfortunately, the Kennedy administration was unable to get the Human Resources Development Act passed by Congress. President L. B. Johnson after President Kennedy's assassination, took responsibility for the act by declaring that his "Great Society" was about to wage a "war on poverty" (Condry, 1983, p.17). The Economic Opportunity Act was passed by Congress in August, 1964, and innovative programs with federal funds were established through the new office of Economic Opportunity (Condry, 1983).

When Head Start was initiated as part of President Johnson's War on Poverty, people were enthusiastic and optimistic about its results. Although initial evaluations appeared positive, the first formal evaluation, The Westinghouse Report (Hauser-Cram, Pierson, Walker & Tivnan, 1991), was rather discouraging. One conclusion of this report was that substantially improving the educational prospects of America's young children would be more challenging than anticipated. Clearly, to be effective, the Head Start Project had to be increased to full year programs (Hauser-Cram, Pierson, Walker & Tivan, 1991).

Despite the controversy caused by this report, belief in Project Head Start continued. It was championed by liberal policy-makers and endorsed by moderate-conservative candidates. In

1989, the nation's governors met with then President Bush and also endorsed early childhood intervention as a promising solution to a variety of problems (Zigler, 1991).

Although initially off to a rocky start, the consensus appears to be favorable in terms of combating the effects of poverty experienced in early life. Early intervention is now viewed as being a value not only for poor children but for other high-risk groups as well. Recently, our nation has embarked on another major effort in early intervention on behalf of that high-risk group of infants and children with developmental disabilities. This newer effort is codified as Public Law 99-457 (Zigler, 1991)and is known as early intervention.

Early Intervention services now far surpass the outreach of the Head Start Project of the 1960s; however, the length of the early intervention programs is still the object of scrutiny. Expanding special services provided to children broadens the resources available to children. As a result of both legislation and litigation, states are now providing special education programs for children with special needs from birth onward. These early intervention services begin with screening and evaluations and span provisions such as programs in the home, center programs, and inclusion programs in regular nursery schools. Services also include parent training, demonstration training, and inservice training for providers.

The primary purpose of this study was to determine the efficacy of early intervention for a sample population of children diagnosed with the specific developmental disability, Down Syndrome. The study specifically looked at the influence of four early intervention treatments on the later school age placement of the sample children: (a) publicly provided programs as prescribed by the current law, (b) privately provided programs selected by parents, (c) a combination of (a) and (b), and (d) no program provided.

Delimitations

The study was delimited by analyzing only school-age children in the eastern five counties of Pennsylvania who had a diagnosis of Down Syndrome and who fell in the age range of five to ten years. These children had been the cohort who would have been eligible for early intervention under PL 99-457 and Pennsylvania's Act 212. Further delimitation existed due to the analysis of students in this study from communities of middle and upper middle class school districts. The purpose of this delimitation was to preclude contamination of the study by factors such as poverty, impoverished home environment, impoverished language environments.

Significance

Federal and state law require public education agencies to provide programs for children with special needs from birth to school-age. Since their inception, these programs have grown in number and in cost on an annual basis. "Greater than 20,000 children were served in Pennsylvania in 1995-1996 with a needs budget estimated at over 72 million as compared to 4000 children served in earlier programs in 1984 when these laws did not exist" (Price, 1996). Due to both growth in the numbers of children served and the concomitant growing costs of programming for the large numbers of children served, the language and implementation of this legislation is presently under scrutiny by educators and legislators (Price, 1996).

Implications from this study have direct impact on current decision making and policy both at the local and at the national level. This study was an efficacy statement regarding present early intervention programming for children with special needs and decisions for future programs. Specifically, this study provided insight into which of the early intervention treatments were effective in elementary school attainment of these children.

Legislation

The Education of All Handicapped Children Act, PL 94-142, (Levin, 1995) has been in effect for two decades. Hailed as a "handicapped children's Bill of Rights", this law guarantees children with any kind of disability the right to an appropriate public education in the least restrictive environment, as specified by an individualized education plan (The Mainstreaming Debate, 1989).

In 1986, an amendment, PL 99-457, (Levin, 1995) to the existing Education of the Handicapped Children's Act, IDEA, (Levin, 1995) extended eligibility to include children from birth to the age of beginners for elementary school. The school-age of beginners is defined as the age specified by the school district of residence as the age for children to begin first grade. The implementation of this amendment, PL 99-457, (Levin, 1995), began immediately but varied from state to state.

Many states surpassed the federal mandates of PL 99-457 (Levin, 1995) with local legislation. In Pennsylvania, the local legislation was called Act 212: The Early Intervention Services System Act (Pennsylvania Bulletin, 1990). This Act 212 actually exceeded the federal mandates in its local provisions. Pennsylvania's Act 212 entitles all eligible children (children younger than the age of beginners as established by school districts of residence, and who are at least three years of age, and who satisfy criteria stated in the Act) to an appropriate early intervention service program.

The goal of early intervention is to prevent or ameliorate the effects of the child's disability when he/she later enters school. These services may be delivered in a classroom, at home, or in a combination of settings. The duration of the program, in terms of hours per week,

will vary according to the needs of each individual child and his/her family. Pennsylvania's Act 212 of 1990 further defines those developmental services which may be appropriate for eligible young children.

Both federal and local legislation require early intervention services to be provided in the least restrictive environment in which the child's needs can be met and in accordance with an individualized education program (IEP). Least restrictive environment (LRE) is specifically addressed by the language of the act and requires each State Education Agency (SEA) ensure that, to the maximum extent appropriate, children with disabilities, including children in public or private institutions or other care facilities, are educated with children who are non-disabled (Levin, 1995). Services must be provided by qualified personnel, including, but not limited to special educators, speech and language pathologists, audiologists, occupational therapists, physical therapists, psychologists, social workers, nurses, and nutritionists (Pennsylvania Bulletin, 1990).

Focus and Definitions

The focus of the study was identified young children diagnosed with Down Syndrome. The diagnosis of Down Syndrome is made by chromosomal analysis. However, doctors can suspect Down Syndrome at birth from characteristics of the newborn child (Hansen, 1987). This syndrome is widespread, initially identified at birth by physicians, and it is served in both early intervention and school age programs.

According to Lewis (1987) the chromosomal abnormality was not identified until 1959. Prior to this, doctors relied upon their clinical observations of the recognizable physical characteristics. Hansen (1987) defined Down Syndrome as a chromosomal disorder but indicated

that there were most often detectable physical anomalies. Most frequent anomalies include: larger than normal anterior fontanelle (soft spot), slanting eyes with folds of skin at the inner corner (epicanthic folds), white spots on the iris of the eye (Brushfield spots or stars in the eyes), small, unusual ears, tongue protrusion, flat bridge of the nose, short neck, transverse palmar crease, gap between the first and second toes, and poor muscle tone.

Lewis (1987) reported that Down Syndrome occurs in a all populations and social classes, and it is often reported to have higher incidence in males. Lewis explained this exaggeration in incidence within the sexes further by identifying the higher mortality rate in the first few years of life of girls diagnosed with Down Syndrome. There is a high mortality rate in the initial years of life for children born with Down Syndrome causing an incidence decline as the population as a whole ages. It is therefore difficult to accurately determine incidence. Congenital heart disease, greater susceptibility to infectious diseases, and a greater likelihood to die as a result of infectious respiratory disease are some of the reasons for the high mortality rate. With the increased availability of drugs to combat these infections, people with Down Syndrome are living longer. However, despite improved medical care, the person with Down Syndrome under 5 and over 40 years of age is more likely to die than a person without Down Syndrome (Lewis, 1987).

Down Syndrome is the most common generic form of mental retardation. It is recognizable at birth, and most frequently occurs in infants born of older women (Zigler & Hodapp, 1991). Historically, it was thought that children born with this chromosomal disorder function at a very low level of intelligence and, although friendly, are usually not capable of complicated mental performance. These children are mentally retarded, apparently as the result

of the presence of an extra member of the Number 21 chromosome pair. These children have 47 instead of the normal 46 chromosomes (Mussen, Conger, & Kagan, 1974, p.88).

Most early data were derived from institutional populations where lack of stimulation and existence in deprived environments is now felt to have been responsible for the decrement of cognitive development. These institutionalized populations were typically found to be functioning in the severe range of mental retardation. Children raised at home were found to be functioning at the moderately retarded range (Schnell, 1984).

Research Design

This study was "ex post facto" causal-comparative in nature. This was ex post facto research since causes were studied after they exerted their effect on another variable. A noted strength and advantage of using a causal-comparative method is the ability to reveal the relationship among a substantial number of variables. This method is used when a cause and effect relationship exists. It permits the use of field data collection and permits the comparison of the focus behavior patterns or personal characteristics as they are found to be present or absent in the subjects (Borg & Gall, 1989).

Literature Review

Review of early intervention literature indicates that educators and researchers have focused concern and intervention programs to assist families with young children since the 1960s. Despite arguments among developmentalists about the percentage of formation which occurs during the early years, the importance is culturally accepted (Dimidjian, 1989). Warger (1988) reports that preschool education, no longer the exclusive province of the rich or poor, now

is viewed as the potential change agent for greater academic achievement, less-at-risk behavior in adolescence, and enhanced opportunity for children from all economic backgrounds.

Although early childhood education is in a state of flux, Woodhill (1988) proposes that the idea of nurturing children as well as educating them has endured throughout history and he suggests that our present day programming for young children is both a reflective summation and a direct influence of the innovations of Pestalozzi, Roussear, Froebel, Montessori, etc.

The movement in early childhood education to view the environment as significantly impacting cognitive growth stems from Itard's work in France in 1799 with Victor, the wild boy. Itard and his successors began the important tradition of looking at sensory training and stimulation to improve the cognitive abilities of children. This, of course, was overridden for decades by the hereditarianists and the notion of the immutability of intelligence. Binet challenged the position with his intelligence test which he used to demonstrate that intellectual levels could be improved over time through a series of exercises specifically designed to improve the intelligence of mentally retarded children. A more recent challenge to the hereditarians came from the compensatory education movement in the United States in the 1960s. This compensatory education movement had as its basis a contrasting belief, that is, its basic premise was that intelligence is not fixed and can be improved through stimulation, training and programming (Woodhill, 1988)

Hauser-Cram et al (1991) concur that the history behind early childhood programs in the United States is punctuated by differing philosophical and psychological stances particularly regarding the issues of the malleability of cognitive and social skills. Broad investigations strongly supported the long-standing effects of environment over heredity and concluded that

early education profoundly affects the child's learning potential. Coleman et al (1966) in their prominent and controversial report add to the environmental position indicating that measures of social class were found to be stronger indicators of school achievement than factors such as school expenditures or teacher qualities.

Convictions abound in the literature regarding the value of the first five years. Pueschel (1975) proposes the belief that the literature reveals conclusions which indicate that one of the basic variables influencing later life is the quality and quantity of stimulation the young organism receives. Piaget (1977), a known proponent of early stimulation, believes the young child's contact with the environment plays an important role in the development of comprehension. The child's expression of intelligent behavior in later life has its roots in the schemata laid down during the earliest months of life. It would, therefore be of importance during early ages to provide an optimal environment for assimilation, thus benefiting the later process of accommodation.

Zausmer (1975) believes much has been learned and is now understood about the largely hierarchical-developmental processes in infants and young children whose normal development follows a typical course. He summarizes indicating that we know less well how they occur in children who are atypical, and, in particular, who are mentally retarded. The studies mentioned demonstrate theoretical considerations to be translated into effective stimulation programs for children with Down Syndrome.

Lewis (1987) reports that delays historically noted are disputed when viewing the increasing number of later born Down children who are being reared in a more stimulating environment, their own home, than the earlier born Down children. This is said to imply that

delays observed may not be an inevitable consequence of Down Syndrome. The range of ability reported supports the view that Down children reared at home are on an average in advance of children who are brought up in institutions (Lewis, 1987).

The emerging picture in the literature remains one of great variability in the development of intelligence in children with Down Syndrome. This ability ranges from severe retardation to near normal, although the increasing gap with aging between the developmental levels of children with Down Syndrome and typically developing children remains clear. One of the significant factors which seems to influence the developmental outcome is the nature of the environment in which the child is reared. Lewis (1987) shared evidence which affirms the cognitive deficit of institutionally reared children compared to children with Down Syndrome raised at home. Interestingly, Lewis (1987) also indicates that when these children live at home for a few years and are then institutionalized they maintain their superior cognitive development for at least three or four years when compared to children institutionalized at birth (Lewis, 1987).

Vygotsky's (Berk and Winsler, 1993) views concerning children with disabilities appear to concur with Lewis's report. Concurrence occurs in the significance of the social environment in that Vygotsky points out that the most debilitating consequence of the problem for the child's development is not the original disability, but the impact of how the disability changes the opportunities for the child to participate in the normal cultural environment. Vygotsky feels the lack of full participation in normal social activities and interactions limits the development of higher mental functions (Berk & Winsler, 1995).

It remains to be seen whether there is significant evidence indicating that the reverse is true - namely, that early conditioning is a determinant of later mental functioning. But, as a result

of their study, Ohr and Fagan (1994) found that infants with Down Syndrome had benefited from previous intervention and find promise in further study.

Many studies show that the child with Down Syndrome is not as intelligent as the normal child, although in the first year or two of life some of these children may show near normal ability. Evidence indicates that the gap widens as the children age, and this disparity is especially true of children who live in impoverished environments. These studies indicate that like all children, the children with Down Syndrome thrive on stimulation and, possibly without it, their actual potential may not have been fully tapped. Even though the gap widens between the intellectual ability of the typical child and the Down child as they get older, the Down child's intellectual ability is developing (Lewis, 1987).

Rynders and Horrobin (1990) report that school age children with Down Syndrome continue to be restricted by the misperception that they always function at the trainable (non-educable) level or that they will ultimately function at this level later in their schooling. This misperception continues to restrict their educational opportunities despite clear evidence that educable-level performance has been revealed (Rynders & Horrobin, 1990).

Miller, Strain, McKinley, Heckathorn and Miller (1995) presented the results of their study of the effectiveness of preschools in terms of school age programs for youngsters with special needs. The salient question was where are children with special needs placed when they achieve school age and does it matter whether the children were in integrated or segregated preschool settings. Results reported indicate that children from segregated settings were five times more likely to be placed in segregated kindergarten programs than their integrated peers, with significant differences noted at follow-up at the second year.

Methodology

This ex post facto causal-comparative study sought to determine the effect of early intervention for a sample population of children diagnosed with Down Syndrome. Specifically, the study compared different early intervention treatments ((a) public provision of EI, (b) private provision of EI, (c) public and private EI, and (d) no EI) available during the initial five years in the lives of children with Down Syndrome. The purpose of the comparison was to determine if the treatment significantly impacted subsequent elementary school placement and achievement.

The focus of this study was young children who had been diagnosed with Down Syndrome. The selection of children with Down Syndrome was purposeful. Children with this disability are diagnosed at birth, considered "eligible young children" for early intervention programs by both the federal law, PL 99-457 (Levin, 1995), and the local state law, PA Act 212 (Pennsylvania Bulletin, 1990), which mandate early intervention. Additionally, children with mental retardation diagnoses could also be considered exceptional for educational purposes at school age under IDEA , the Individuals with Disabilities Education Act (which is the reauthorized PL 94-142) (Levin, 1995).

Historically, when this population reached school age, they were placed in segregated special education programs. These placements were typically out of the neighborhood-home school and most often out of the home school district. This often prevented the student with a disability from becoming acquainted with and benefiting from association with the typically developing neighborhood students.

Sample and District Selection

The sample was comprised of 38 school age students between the age of five and ten with

the diagnosis of Down Syndrome. These youngsters were residents of homogeneous communities. At age three this sample would have been eligible to participate in one of the early intervention treatments. The parents of the children responded to an invitation to participate in the study presented to them by an administrator in their respective school districts.

The school districts were selected from examination of demographic information obtained from the Pennsylvania Department of Education for Berks, Bucks, Chester, Delaware, and Montgomery counties. These are five contiguous counties located in the Eastern region of Pennsylvania. Demographic data displayed included indices such as, assessed market value/ personal income ratio which is computed to arrive at the state aid ratio to each school district. This aid ratio permitted the selection of similarly-matched districts within the five county area (similar socio-economic backgrounds) which was consistent with the goal of limiting the study to middle and upper middle class suburban school districts.

Narrowing the focus to middle and upper-middle class districts permitted the limiting of the sample selection to families with similar socio-economic means. The purpose of this demographic match was to strengthen the matched variables of the sample, i.e., families of similar socio-economic backgrounds might also have similar educational backgrounds, value education as a priority for their children, and value the provision of a language/experience rich environment for their children.

Treatments

In publicly provided treatments children would have experienced screening, evaluations and, if found eligible, an individual education program (IEP) would have been written by a multidisciplinary team (including the parents) which would be the framework and detailed

curriculum base for the child's program. The individualized early intervention treatment might be classroom based where regulated staff-student ratios determined by the developmental level of the child, permitted individual or small group work with the child. Classroom programs might be developmental-educationally based, language based or behaviorally based. Every attempt was made to provide programs where integration with non-handicapped children was probable to address the social domain. Other publicly provided options included lesser amounts of classroom-based intervention, itinerant intervention where designated staff (i.e., teacher, occupational therapist and speech therapist) went to the child a designated amount of time per week to provide service, itinerant intervention where the parent brought the child to a center for intervention, or itinerant interventions where the itinerants went to the home, Head Start, or daycare to provide services or consultation to other staff.

Some private interventions were provided by agencies on contract with the public provider (where some part of the agency's EI program was a sub-contract program) and were therefore expected to follow the same federal and state standards and regulations. These contracted agency providers were typically special education center-based programs without integration possibilities. These private agencies had other portions of their programs (those not on contract with the public provider , e.g. private special education institutions or programs of extended day care, etc.) which might have been offered to parents at personal expense and were therefore, without constriction of the regulations and standards.

Other private early intervention programs were private kindergarten and nursery school/day care programs with their own early childhood curriculums. Also included in this category were church-run programs, programs in typical licensed nursery and day care facilities,

franchise facilities, or home day care programs. Most of the private nursery/day care programs had the benefit of inclusion with children who were typically developing and provided their own brand of curriculum. Frequently, the publicly provided itinerant professionals came to these facilities on a weekly basis to either instruct the child, consult with the staff, or both. Decisions for children to attend these types of programs were often the parents' choice.

Combined public and private programs were situations where public programs were offered to some eligible children whose parents opted to also enroll their children in private programs for the remainder of the day or week. Additionally, parents often elected to provide other related services on a private basis such as, more speech, occupational and/or physical therapy.

No treatment was assigned to those situations where, for some reason, the family did not become aware of available interventions or chose not to avail them and the child did not receive any services.

Parent-Teacher Interviews

Individual, semi-structured interviews of parents and teachers formed the basis for data triangulation in this study. A questionnaire functioned as a framework for the interviews to ensure that necessary demographic areas of research were captured. In addition to demographic information, the perspective of the parent and the teacher regarding the achievement of the student in targeted domains which had been the focus of early intervention was also sought. With parental permission cumulative school records were explored for information regarding current academic achievement and history of referrals to the special education system. Information from parents and records provided indications of preschool programming.

Design

This ex post facto causal-comparative study explored the relationship between independent variables (public early intervention treatment, private early intervention treatment, public with private early intervention treatment or no early intervention treatment) which had already occurred and dependent variables (subsequent school placement) to determine if the outcome (current placement) could be assigned to the treatment.

This study employed both field based and quantitative methodology since the study involved investigating the relationships of combinations of the variables. Field based interviewing (Le Compte, Millroy & Preissle, 1992) was employed to discover and give voice to the significant stakeholders in the study: the parents and the teachers. The following research hypotheses were pursued:

1. Children with Down Syndrome (DS) who had publicly provided EI programming had a greater number of school age placements in their home elementary schools than those who had private or no intervention.
2. Children with DS who had privately provided EI programming had fewer school age placements in their home elementary schools than those who had publicly provided programs.
3. Children with DS who had public and private EI programming had similar school age placements to those who had publicly provided programs.
4. Children with DS who had no EI programming were placed in segregated special education facilities rather than the home elementary school.
5. Children with DS who had been provided EI programming in an inclusive environment

had a greater number of inclusive school-age placements than those who had public, private, public/private, or no program in a center-based special education classroom.

6. Children with DS who had EI programming had more integrated placements in the primary grades in a regular elementary building than those who had no EI programming.

7. Children with DS who had EI programming had fewer self-contained special education placements.

General Findings

This study investigated the influence of the specific early intervention treatments experienced by a sample group of 38 children identified with Down Syndrome and their effect on subsequent school placement. Findings compared the influence of the four different independent variables experienced by the representative population.

Demographically, interviews indicated that 68% of the sample were male. 95% of the sample had siblings, 3% were fraternal twins. Of interest was the break out of birth order. Six children were first born/only children, seven children were the first child of two, five were the second of two. Five were the second of three and eight were the third of three. Two children were the fourth of four, two were the fifth of five, one was the fifth of six and one the fifth of seven. One child was the seventh of seven. 34% of the sample were first born or only children and 47% were the baby of the family.

Table 1: Maternal Age at the Birth of the Child with Down Syndrome

20 - 24 yrs.	25 - 29 yrs.	30 yrs.	31 - 34 yrs.	35 yrs.	36 - 39 yrs.	40 - 42 yrs.
8%	37%	5%	19%	21%	5%	5%

Parents shared consensus regarding the positive impact of Early Intervention programs on the present and future lives of their children. They particularly shared that inclusive early intervention programs prepared their children for inclusive school age programs.

Table 2 indicates the actual Early Intervention treatments experienced by the sample which were identified in parent interviews.

Table 2: Actual Breakdown of Sample by Treatment Group

Public Early Intervention Provided	Private Early Intervention Provided	Public and Private Early Intervention Provided	No Early Intervention Provided
58%	31%	11%	0%

Table 3 indicates the pattern of the ages of the sample. All students had been eligible to be included in early intervention programs

Table 3: Age Pattern of Sample

5-6 years	7 years	8 years	9 years	10+ years
24%	27%	11%	19%	19%

Table 4 is an indication of the findings of birth order of sample.

Table 4: Birth Order Findings

	First	Second	Third	Fourth	Fifth	Sixth	Seventh
One child	6						
Two Children	7	5					
Three Children		5	8				
Four Children				2			
Five Children					2		
Six Children					1		
Seven Children					1		1

Table 5 reflects the school age placements of the sample by Treatment Group.

Table 5: School Age Placement by Treatment Group

	Regular Education often with aide	Inclusion Program	Integrated Regular & Special Education	Full time Special Education
Public EI Treatment Group	5	1	9	8
Private EI Treatment Group	2		2	
Public and Private Treatment Group	2	4	4	1
No EI Treatment Group	0	0	0	0

Summarizing, teachers appreciated the efforts, support and committed involvement of the parents of children with DS. Seventy-four percent of the teachers recognized that one of the benefits of early intervention was the training and support it provided to the parents of children with special needs. Regular teachers shared their need for training in strategies for dealing with special populations in the regular classroom. Many teachers , both regular and special education,

felt the students with special needs take time from other students and felt the students with special needs would derive more benefit from the individualized education available in a special education classroom.

Conclusions

The primary purpose of the efficacy study was to determine the influence of early intervention treatments on the subsequent school placements of children with Down Syndrome. Specifically, this ex post facto causal-comparative study sought to discover the impact of four early intervention treatments on a representative group: publicly provided early intervention as prescribed by current law, private early intervention selected and provided by parents, a combination of public and private early intervention programming and no early intervention.

Hypothesis 1 asked if. children with Down Syndrome (DS) who had publicly provided EI programming had a greater number of school age placements in their home elementary schools than those who had private or no intervention. From the analyzed interview data it can be seen that 58% of the sample had publicly provided EI programming. Of those who had received public intervention, 26% were now in home district inclusion programs, 39% were in integrated regular-special education placements, 35% were in full-time special education placements within the district or were outside the district in a full-time special education facility.

Hypothesis 2 asked if .children with DS who had privately provided EI programming had a lesser number of school age placements in their home elementary schools than those who had publicly provided programs. From the analyzed interview data it is evident: 11% of the sample had privately provided intervention. Of those who had received private programming, 50% were found to be in home district school age inclusion programs, 25% were in integrated

regular and special education placements, and 25% were in full time special education placements.

Hypothesis 3 asked if children with DS who had public and private EI programming had similar school age placements to those who had publicly provided programs. Analyzed interview data indicates that 31% of the sample had this experience. Parents selected inclusive sites with typically developing youngsters and had IEPs which indicated that publicly funded staff provide individualized instruction and supportive therapies, occupational, physical and/or speech therapy at the inclusive site or the IEPs indicated that the students come to a publicly provided program for part of the day. Field data indicated of those receiving multiple treatment programming: 50% were found in school age inclusion programs in their home school district. 33% were in integrated regular-special education placements, and 17% were in full-time special education placements.

Hypothesis 4 asked if children with DS who had no EI programming were placed in segregated special education facilities rather than the home elementary school. This study found no students in the sample who had not experienced treatment(s) during the period of eligibility.

Hypothesis 5 asked if children with DS who had been provided EI programming in an inclusive environment had a greater number of inclusive school-age placements than those who had public, private, public/private, or no program in a center-based special education classroom. Analyzed field data indicated that those students who had private intervention or private intervention with public supports in EI inclusion programs did have greater numbers of inclusive placements in school age programs. Fifty percent of those children from private intervention programs and 50% of the private/public programs were found in school-age inclusion programs.

Hypothesis 6 asked. children with DS who had EI programming had more integrated placements in the primary grades in a regular elementary building than those who had no EI programming. Field interview data suggests: 58% of the students had the public EI program. Of that group, 65% were in integrated school age settings. Eleven percent of the sample had privately provided EI programming. Of that group, 75% were in integrated school age settings. Thirty-one percent of the sample had experienced the private and public EI programs. Of these, 83 % were in integrated settings in elementary buildings.

Hypothesis 7 asked if children who had EI programming had fewer self-contained special-education placements in regular buildings or special education centers at the elementary level. Analyzed field data indicates: Of the 58% of the students from the public-intervention group, 22% had self-contained special education settings in regular buildings and 14% had self-contained special education placements in centers. Of the 21% of the students from the private-intervention group, 25% had self-contained settings at school age. Of the 13% of the students from the private and public intervention group, 8% had self-contained settings at school age.

Limitations

Several issues are identified as potential limitations of this study. The first obvious limitation of the study was the confinement to the representative sample from communities in homogeneous school districts in the Eastern part of Pennsylvania. Secondly, a limitation of the study was also one of the cornerstones of the study. Specifically, it was felt that families within the middle and upper-middle income levels would value education, create stimulating environment, provide enhanced educational experiences and enhance the child with rich

language. The sample was composed of parents whose middle and upper-middle class economic status enabled them to provide many experiences and obtain many services not possible for parents of lesser economic states. This promoted significant success for the students in this sample. Differences were noted when viewing the alternatives and options of the majority of those parents interviewed to the 8% who lived in those districts but were not of the same means.

A third limitation was the incidence of the potential sample which was possibly diminished by medical intervention. Medical interventions, such as amniocentesis, are often able to indicate the presence of a child with DS. For some couples, this information leads to another intervention, abortion, which could be the cause of the lower than anticipated numbers available.

Recognized is the reality that changes in the criteria established for this study would alter the results of the research. Findings would not be replicated with all populations with Down Syndrome.

Overall Analysis

This research found that early intervention programs have affected a change in the school-age placements of children with Down syndrome. In the present study, only 8% were in segregated special education school-age situations. Eighteen percent were in full-time special education placements within school districts. Forty-two percent were in integrated settings within school districts where significant portions of their educational program found them interacting with their typically developing peer models. And, of significance, data indicate that 32% of the children were in inclusive school-age programs.

Central to this study was the hypothesis regarding the dollars expended for early

intervention programming: dollars spent for EI programs eliminate the need for, or decrease the amount of dollars needed for, subsequent elementary remedial or special education programs. Clearly, this study indicated a decrease in the severity and number of expensive segregated special education placements. Multiple EI treatments and integrated EI programs with increased exposure and opportunities with typically developing youngsters, appeared to improve the prospects for successful integration in regular education at school age for the eligible young students in this sample. This study is significant to current policy and program. Further research in broader studies is recommended.

Future Study

Further broader research is needed to replicate the findings of this study. Returning to the same counties for exploration in all school districts within the five counties would provide significant information regarding the premises of middle to upper middle socio-economic stratas. A significant finding of this study was the ability of the parents involved to provide individual attention, dedicated commitment to provide rich experiences and multiple programs and services. Expanded studies throughout these counties would determine the replicability of this finding.

Comparisons of programming provisions, additional services, therapies provided, and placements in heterogeneous districts would be of interest. Before changes are recommended these broader steps must be considered.

This same study done throughout the state for similar information and comparison would be of significant interest based on homogeneous districts and heterogeneous districts.

A longitudinal study looking at these same children in five years, ten years, and at

the point of graduation would reveal important developmental and programmatic data. The expanded research on the effects and the quality of these early intervention programs would provide the impetus for initiating quality programs which would permit all children to learn and become productive adults.

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